



- a) Given the launch velocity of a projectile is v , and target coordinates are (x, y) relative to the launch position; derive the equation below which is necessary for finding the angle of attack:

$$\frac{gx^2}{2v^2} \tan^2 \theta + x \tan \theta + \frac{gx^2}{2v^2} - y = 0$$

- b) The launch velocity of an artillery shell is 425 m/s. Neglecting air resistance and weather systems, calculate the angle necessary to hit a target located $(x,y)=(3790\text{m}, 2706\text{m})$.